

# Intensifying self-awareness of undergraduate students toward hypertension risk factors through health education



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## ABSTRACT

**Introduction:** Hypertension in adolescents' risk factors include foods that contain high sodium, lack of physical activity, stress, obesity, alcohol consumption, and smoking. Order to prevent hypertension incidence in adolescents by increasing self-awareness through the provision of health education. This study aimed to determine the health education effect regarding the risk factors of hypertension (stress and sodium diet) on the self-awareness of undergraduate students in Yogyakarta.

**Methods:** This study was a quantitative study with a quasi-experiment pretest & posttest with a control group design. The hypertension self-awareness questionnaire was used in this study and the results will be classified into two groups (the control and the intervention group). The sample obtained in this study was 54 respondents. The Mann-Whitney U and Wilcoxon Signed Rank test was done in this study.

**Results:** It showed that there were significant differences in the intervention group and control group. There were significant differences in results found before and after health education (significance value 0.000), while the result for the control group is 0.06, which indicates that there were no significant differences before and after the leaflet.

**Conclusions:** It can be concluded that health education regarding risk factors for hypertension (stress and a high sodium diet) can increase self-awareness for undergraduate students in Yogyakarta.

**Keywords:** Self-awareness, Hypertension, Student.

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## INTRODUCTION

Hypertension is a disease that characterized by the increase of systolic pressure above 130 mmHg and diastolic pressure is above 80 mmHg.<sup>1</sup> Hypertension can lead to an increase in morbidity and mortality for sufferers.<sup>2</sup> In Indonesia, the incidence of hypertension in 2018 showed an increase of 34.1% compared to 2013 which was 25.8%. In Yogyakarta, the incidence of hypertension has increased quite rapidly in recent years.

Hypertension is more common in adolescents of middle to upper socioeconomic levels. Hypertension in adolescents can be affected by several factors, including consuming certain nutrients, such as sodium, carbohydrates, and fats. Other factors, such as lack of physical activity will affect blood pressure.<sup>3</sup>

Agustina and Raharjo two risk factors contribute to the incidence of hypertension, namely risk factors that can be modified, namely lifestyle, smoking, alcohol, obesity, exercise, consuming high

sodium foods, and stress.<sup>4</sup> In contrast, the risk factors that cannot be modified are genetics, age, and gender. Hypertension will increase when risk factors cannot be controlled.<sup>5</sup>

One way to prevent the incidence of hypertension in adolescents is to increase self-awareness. Self-awareness is an individual's understanding of the character, physical characteristics, temperament, and personality that is in oneself. Awareness in a person can cause the person to recognize the talents they have and be able to have a clear concept or picture of themselves with their own weaknesses and strengths.<sup>6</sup> Improving the self-awareness of someone can be done by providing health education.

According to Diyono, Kristanto, and Prasetyo, individuals who have good knowledge about an object, have a good attitude as well as good behavior towards the object.<sup>7</sup> Someone who has knowledge about hypertension will take action to be able to control their blood

pressure, if someone lacks knowledge about hypertension usually tends to have a lack of preventive behavior to control blood pressure. The results show that blood pressure control behavior starts with adequate knowledge, then after individuals have sufficient knowledge about hypertension, they will slowly start taking preventive measures by controlling their blood pressure.<sup>8</sup>

Based on the research conducted by Beigi et al., providing health education in the form of changes in lifestyle patterns increase self-awareness significantly from 12% to 51% where the effect of providing health education can increase self-awareness and can reduce the incidence of hypertension in the future.<sup>9,10</sup>

Researchers are interested in conducting a study related to health education, specifically about hypertension risk factors (stress and high sodium diet) on self-awareness in students in Yogyakarta. This was intended to prevent the incidence of hypertension due to a

lack of self-awareness in students, where they keep carrying out activities that can increase the risk of hypertension, and in this case, providing health education to students is expected to be able to reduce or reduce the risk of hypertension or can indirectly prevent it early in order to avoid it happening future hypertension.

## METHODS

### Study Design

This research used a quasi-experimental pre-test & post-test method with a control group design.

### Data Collection

Then, this study classified the results into two groups, namely the intervention and the control group. The inclusion criteria in this research were undergraduate program students willing to become respondents and were still registered as active students at the university in the 2019/2020 school year. The respondents in this study were 54 students (27 respondents in each group). This study was conducted in Yogyakarta in April 2019. The instrument used in this study was a hypertension self-awareness questionnaire (stress and high sodium diet) with a total of 24 questions that had been tested for validity (CVI) with a result of 0.9 and a biserial point test of ( $> 0.30$ ) which means this instrument is valid. The reliability test was carried out on 30 undergraduate students who had the same respondent characteristics.

The educational media used in this study were power points (PPT) and Clean and Healthy Living Behavior (CHLB) leaflets. The intervention group was given education about health education related to hypertension risk factors (stress and a high sodium diet) while the control group was given leaflets about CHLB. The pre-test and post-test were analyzed to see the differences in self-awareness between the groups. The implementation of education in the intervention group was carried out individually with PPT media. It took 2 weeks to complete education in all intervention groups. The control group was given the same questionnaire as the intervention group. After the pre-test was carried out, the control group was given leaflets related to CHLB for them to read.

### Data Analysis

The pre-test and post-test data obtained from the respondents were then processed with the help of a computer program. Furthermore, this study found that the intervention group (pre-test) has the normally distributed data (sig 0.148) while the other groups showed different results. Therefore, this study used the Wilcoxon test and the Mann-Whitney U test.

## RESULTS

Based on [table 1](#), the majority of respondents' gender is male with 15 people (56%) in the intervention group and 19 people which is (70%) in the control group, followed by age calculation results showing the majority intervention group at the age of 20 years, namely 7 people (26%), and in the control group, the majority of the respondent is at the age of 21 years as many as 8 people (30%). The results of calculations on family history with hypertension showed that the intervention group has 17 people (63%) and the control group had 15 people (56%) with a family history of hypertension.

Based on [table 2](#), it was showed that there was significant increase of self-awareness (post-test) compared to intervention group (pre-test) which indicated by p value  $< 0.05$  ( $p=0.000$ )

In the data analysis of the pre and post intervention on self-awareness values in the control group, it was found that there is a significant difference in the self-awareness value between these groups ( $p=0.006$ ).

### Results of the Comparison Test of Post-Test Self-Awareness Test

Based on [table 3](#) with the Mann-Whitney test, the post-test value obtained a significance value of 0.001 for post-test self-awareness between the intervention and the control group. It indicated that there was a significant difference in the value of self-awareness between both groups after being explained about health education.

## DISCUSSION

According to [table 2](#), it was found that there was a significant difference between the pre-test and post-test self-awareness

values of the control group. The difference in the pre-test and post-test scores of self-awareness was significant in the control group because the respondents in the control group in this study were health science students. The students have knowledge related to hypertension which makes the results of the pre-and post-test different. This is supported by the previous study which compares the health knowledge of health science students who have higher knowledge than non-health science students.

Health science students have been accustomed to learning by using problem-based learning methods, which is a learning method where the learning process uses real problems and that students are required to think critically and have skills in solving real problems. This was in line with the previous study which states that there are differences in the knowledge of students who use problem-based learning methods compared to students who do not use problem-based learning. The control group was only given PHBS leaflets which had nothing to do with hypertension and were not given health education regarding hypertension risk factors.

Based on [Tables 2](#) and [3](#), it was found that the results of the data analysis showed a difference between both groups according to the self-awareness aspect. It may occur due to the intervention respondents already receiving health education, which improves knowledge and self-awareness regarding hypertension.

Health education is a learning effort for students that will push them to take action and increase self-awareness and reduce the incidence of hypertension. This is following the theory of Nursalam (2008) which mentioned that Health education can be interpreted as a consciously planned process that aims to generate opportunities for all individuals to have the ability and willingness to learn to improve knowledge and skills (life skills) and improve awareness (literacy) for health purposes.<sup>11</sup> According to Notoatmodjo Health education in general is a process to improve the community's ability to maintain health and improve their health.<sup>12</sup>

This study uses health education methods for bigger groups, health

education techniques used were lectures. The content of health education is about risk factors of hypertension, the lectures were done using audiovisuals and are spoken with words that are easily understood by respondents. The provision of health education using audiovisual media can attract the attention of respondents which increases their knowledge of respondents.<sup>13</sup>

The provision of health education can increase students' knowledge and self-awareness to change their lifestyle and prevent hypertension in their teens. This is supported by the theory of Nursalam et al, the purpose of health education is to foster a change in attitudes and behavior in individuals, special groups,

families, and communities in the process of maintaining and fostering healthy living behaviors and play an active role in realizing optimal health.<sup>11</sup> Beigi et al. say that health education can significantly increase self-awareness from 12% to 51%, which means that providing health education related to hypertension risk factors (stress and a diet high in sodium) will reduce the incidence of hypertension in students.<sup>9</sup> According to Soedarsono in Malikah, great self-awareness can lead to a better individual quality, one of which is a person who understands the importance of preventing themselves from all types of diseases.<sup>14</sup> This was in line with a previous study that stated a good self-awareness in an individual will prevent negative things,

they tend to think about the impact that will occur. In addition, the person will find it easier to make decisions and be able to think about the impact of what will happen next.<sup>15</sup>

## CONCLUSIONS

There was a significant difference in self-awareness between the intervention group compared to the control group after being given health education on hypertension risk factors (stress and high sodium diet).

## DISCLOSURES

### Funding

None.

### Conflict of Interest

The authors declare that there is no conflict of interest.

### Ethic Approval

This research has been declared ethically feasible (meets criteria 7 of WHO standards, 2011) from the Research Ethics Committee of Faculty of Nursing and Health, Muhammadiyah University of Yogyakarta, Indonesia, on March 4, 2019 with ethics number 050/EC-KEPK FKIK UMY/II/2019.

### Author Contribution

All authors contributed to this study's conception and design, data analysis and interpretation, until reporting the result for publication.

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**Table 1. Frequency Distribution of Respondents Characteristics of Undergraduate Students (N=54).**

Characteristics	Intervention Group		control group	
	Total (n)	Percentage (%)	Total (n)	Percentage %
<b>Gender</b>				
a. Male	15	56	19	70
b. Female	12	44	8	30
<b>Age</b>				
Late adolescence (17-25 years)	27	100	27	100
<b>Family history (hypertension)</b>				
a. Yes	17	63	15	56
b. No	10	37	12	44
Total	27	100	27	100

Data source: Primary Data, 2019

**Table 2. Comparison Analysis of Self-Awareness Pre-Test and Post-Test of the Hypertension Risk Factors Health Education in the Intervention Group and Control Group with Wilcoxon Test (N=54).**

Variables	Pre-Test (n=27)		Post Test (n=27)		p
	Min-Max	Mean±SD	Min-Max	Mean±SD	
Self-awareness of intervention group	8-23	3.97	17-24	1.48	0.001
Self-awareness of control group	9-22	4.39	11-22	3.85	0.006

Data source: Primary Data, 2019

**Table 3. The post-test self-awareness analysis between the intervention group and the control group using the Mann-Withney test (N=54).**

Variables	Post Test (n=27)		p
	Min-Max	Mean±SD	
Self-awareness of intervention group	17-24	1.48	0.000
Self-awareness of control group	11-22	3.85	

Data source: Primary Data, 2019

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